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THE AGRICULTURAL STUDENT

-A-
MONTHLY MAGAZINE
DEVOTED TO
AGRICULTURAL
EDUCATION

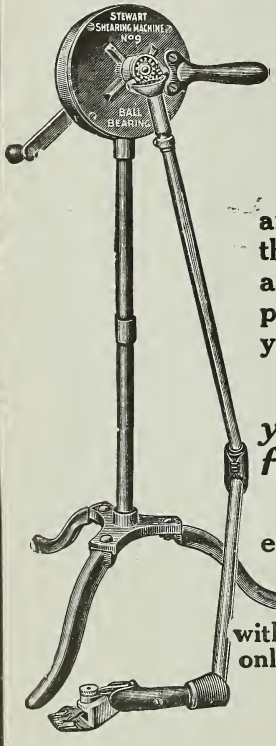
10c per copy

75c per year

FEBRUARY, 1912
FIELD CROPS NUMBER

Have You a Good Sheep Shearing Machine?

If not, we ask you to try out thoroughly this season one of our



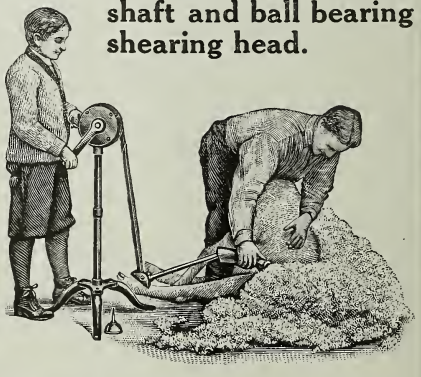
Stewart No. 9 Ball Bearing Machines

We are confident you will find it superior to anything else in a hand operated machine. It is the best machine we have been able to produce after twenty years of experience in making clipping and shearing machines, and we offer it to you with the distinct understanding that

It must do your work satisfactory to you or it may be returned at our expense for refund of all paid out.

It has large, enclosed gear case containing extra size balance wheel; it has ball bearings throughout, including ball bearing shearing shaft and ball bearing shearing head.

Price, all complete, with four sets of knives only **$11.50**



Get one from your dealer or send $2 and we will ship C. O. D. for balance, subject to above agreement.

Write for new 1912 catalogue showing the world's largest and most modern line of shearing and clipping machines.

SEND NOW

Chicago Flexible Shaft Company

82 La Salle Avenue, CHICAGO

Quit Doing This → Get a GOOD Spreader

EVERYONE knows that if soil is not fertilized it will soon wear out. The barren condition of thousands of farms in this country proves this statement. A large percentage of this number could be improved if manure were spread judiciously.

Field experiments prove that eight tons of manure evenly spread are as good as twice that number spread in a haphazard way. Hand spreading requires at least twenty loads to cover an acre. With a manure spreader, eight loads will cover the same amount of ground more evenly, but—

Your problem of soil fertility is only half solved when you decide to get a manure spreader. The other half—of equal importance—is in deciding just which spreader is best for you to buy.

If you investigate thoroughly and decide carefully, you will select a spreader that thousands of other progressive farmers are having great success with—one of the

I H C Manure Spreaders

The simple design and unusual strength of all working parts of I H C Spreaders account for their long life and light draft.

The method of transmitting power from the wheels to the beater is simple and direct. There are no unnecessary parts to wear. The beater is large in diameter and the teeth are long, square, and chisel pointed. By using this style of tooth, the manure is thoroughly pulverized and is thrown out before it wedges against the bars. By using a square tooth, rimming of the bars is overcome.

I H C Service Bureau

The Bureau is a clearing house of agricultural data. It aims to learn the best ways of doing things on the farm, and then distribute the information. Your individual experience may help others. Send your problem to the I H C Service Bureau.

The apron is supported by steel rollers and the slats are placed close together, so that manure does not sift down and interfere with the movement of the rollers. The steel wheels have ample strength to carry many times the weight they will ever be called upon to bear. The rims are flanged inwardly to prevent cutting and rutting of meadows and accumulation of trash. Z-shaped lugs give the wheel a practically continuous ground-bearing surface and do not jar the machine to pieces. There is no reach to prevent short turning.

In the I H C line, you have choice of these three famous styles—

Cloverleaf Corn King Kemp 20th Century

All are simple, strong, and durable—all are easily and instantly adjustable to spread light or heavy, as the soil requires, and all three are made in sizes suitable to any size farm. See the IH C local dealer—and get catalogues from him, or, write direct.

INTERNATIONAL HARVESTER COMPANY OF AMERICA
Chicago (Incorporated) U S A

What We Paid FOR Butter-Fat

Average for November
33½c

Average for December
33.45c

□□□

Free Cans Furnished While Making 30 Day Trial. Write Today for Cans.

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The Ohio Dairy Co.
COLUMBUS, OHIO

Cash Buyers

Please mention THE AGRICULTURAL STUDENT when writing advertisers.

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GROUND PHOSPHATE ROCK

The most economical and only permanent soil builder. An application of 2000 lbs. per acre will furnish an abundant supply of Phosphorus for five to ten years.

Broadcast over clover and other legumes, or on stubble fields—at any time during the year—and when ready to do so plow in.

Mix it with all the animal manure—preferably making the mixture throughout the year as the manure accumulates by sprinkling in stables and feeding lots and over manure heaps, or pits, daily.

We have one of the most complete and "up-to-date" drying and grinding plants in the Mt. Pleasant District, and the only one producing a grinding of which 90% will pass a 100 mesh screen and 70% a 200 mesh screen. A large storage enables us to make prompt shipments.

We are always ready to correct and make good our mistakes and will use every endeavor to give satisfaction.

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No imitation of a sanitary cleaner in a dairy can take the place of a real sanitary dairy cleaner. When it comes to protecting the milk from its dangerous enemy, bacteria, and to warding off contamination by odors and germs, nothing can give the same assurance as a real sanitary dairy cleaner.

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In Every Package.

Wyandotte Dairyman's Cleaner and Cleanser

has created a place for itself in every dairy, whether large or small, for it is the only cleaner which is both sanitary in composition and sanitary in its cleaning

Each particle of Wyandotte Dairyman's Cleaner and Cleanser is cleaning. You can depend upon it to clean thoroughly without a trace of injury to the surface to which it is applied. Nor will it leave a slight film of grease or caustic as do soaps, soap powders, sal soda and lye. It is sanitary in every respect.

You buy Wyandotte Dairyman's Cleaner and Cleanser knowing that it has no substitutes. No other cleaner will satisfy after you have once become used to the clean, wholesome conditions, so easily attained with its use.

You take the initial step, ask your dealer for a sack or write your supply house for a barrel; we will do our part by guaranteeing complete satisfaction.

The J. B. Ford Co., Sole Mfrs., Wyandotte, Mich., U. S. A.

This Cleaner has been awarded the highest prize wherever exhibited.

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The Independent Packers Fertilizing Co.
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Honest Goods at Fair Prices

Agents wanted in every territory.
Write us for prices and terms.

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ALFALFA
SOY BEANS
SEED CORN

Our ALFALFA SEED IS GUARANTEED FREE FROM DODDER. WE RETAIL MORE SOY BEANS THAN ANY OTHER SEEDSMAN IN THE UNITED STATES. PEDIGREED SEED CORN and SPECIAL GRASS MIXTURES.

For several years we have been selling our ALFALFA SEED to nearly all the EXPERIMENT STATIONS and AGRICULTURAL COLLEGES throughout the "Corn Belt" and the New England States, and to the Department of Agriculture at Washington.

Send for our booklet, "ALFALFA AND HOW TO GROW IT." This gives the latest and best methods for growing ALFALFA, instructions so complete that anyone can succeed by following them, tells more about SOY BEANS than you can learn from any other source, tells you how to build up your farm by the use of the right crops and the proper fertilizers.

WING SEED COMPANY

Box V, MECHANICSBURG, OHIO.

Please mention THE AGRICULTURAL STUDENT when writing advertisers.

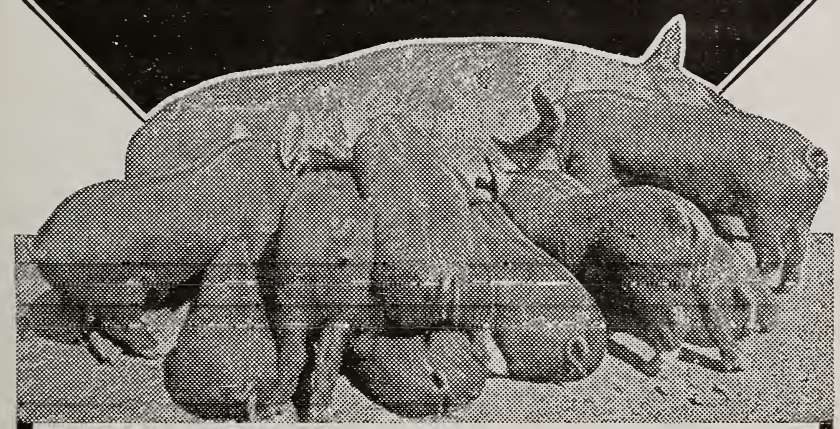
"We have used Sal-Vet since 1909 and would not know how to grow sheep without it. We consider it the only practical worm remedy on the market. for it destroys the worm before the latter has a chance to injure the sheep, if kept constantly before the animals. We have also had good success with the treatment in cases in which infection was well advanced. We consider that in Sal-Vet lies the Salvation of the sheep business in America, and we recommend its constant use to our customers, as well as to others.

"CHAS. LEET & SON, Mantua, Ohio."

"We have used Sal-Vet with excellent satisfaction, and while we have not obtained information as to the absolute effect in our sheep, they consumed the preparation with results which appear to us to corroborate your statement, that it is desirable for discouraging the development of worms and keeping sheep in good condition. I believe that Sal-Vet will repay the user in the results which come from its action in his flock.

(Signed) "C. S. PLUMB, B. Sc.,
"Prof. Animal Husbandry."

Warning!



Save Your Little Pigs

From Deadly Worms and Diseases

If you want healthy litters of pigs like these **you must** keep them free from worms. Even three weeks old pigs are often found loaded with these deadly pests. Their growth is stunted. They cannot put on money-making fat. They become easy victims of **hog cholera** and other destructive contagious diseases; not only that, bu worms rob both old hogs and young pigs of their feed, sap their vitality, steal away your profits every hour they are allowed to infest your herd. Stop this costly loss with

TRADE MARK
SAL-VET
REG. U.S. PAT. OFF.

The Great Worm Destroyer and Conditioner

A medicated salt guaranteed to rid hogs, sheep, cattle and horses of all stomach and free intestinal worms. Not only that, but Sal-Vet aids digestion, puts an edge on the appetite; keeps your stock in tip-top condition. You do not have to "dose" with Sal-Vet. No drenching—no handling. Animals eat it naturally. They doctor themselves. Read what this wise farmer says:

"I have been a free user of 'Sal-Vet' ever since its introduction, and find that it is the most perfect worm exterminator on the market today. I feed 'Sal-Vet' as I would salt, and not as a feed, and it will positively do all that you claim for it."

E. C. STONE, Sec. Amer. Hamp. Swine Record Assn., Peoria, Ill.

Try it 60 Days Before You Pay I know that Sal-Vet will rid your hogs, sheep, horses and cattle of worms and indigestion and I want you to try it at my expense if it fails. Just fill out the coupon telling me how many head of stock you are feeding and I'll send you at once enough Sal-Vet to feed them 60 days. If it doesn't do all I claim, then you needn't pay me one cent. Send now.

Send No Money—Just This Coupon

S. R. FEIL, Pres. S. R. Feil Co. Dept. Ag. S. Cleveland, O.

Prices: 40 lbs., $2.25; 100 lbs., $5.00; 200 lbs. $9.00, 300 lbs., $13.00; 500 lbs. $21.12. No order filled for less than 40 lbs. (47)

Sidney R. Feil, Pres., The S. R. Feil Co., Cleveland, O.
Ship me enough Sal-Vet to test my stock 60 days. I will report results in 60 days and will then pay for it, if it does what you claim. If it does not, you are to cancel the charge.

Name _____ Shipping Sta. _____ State _____
P. O. _____ Sheep _____ Hogs _____
Cattle _____ Horses _____
Ag. S. 2-15-12

A Few Facts About Clay, Robinson & Co.

Our business has been established for over Twenty-Five Years, and is the largest of its kind in the world.

We started in 1886 with 4 employes. Our staff of employes now numbers 230.

In 1886 the total floor space occupied was 212 square feet. We now occupy a total of 22,325 square feet of floor space for our offices at ten markets.

Following figures show the number of head of live stock handled for the years named:

	Cattle	Hogs	Sheep	Total
1900	395,353	376,478	1,321,872	2,093,703
1905	690,153	556,905	2,650,024	3,897,082
1910	871,630	722,087	3,354,137	4,947,854

In 1900 annual cash turn-over was	$37,225,590
In 1905 annual cash turn-over was	$70,717,490
In 1910 annual cash turn-over was	$105,157,213

The founders of the firm, John Clay and Charles O. Robinson, are still active in its management. Associated with them as partners are J. G. Forrest, Frank H. Connor and C. A. Kleman.

Your banker will tell you that Clay, Robinson & Co. are "Solid as the rock."

We are situated at the ten leading live stock markets. Therefore our service is without bias in favor of any particular market.

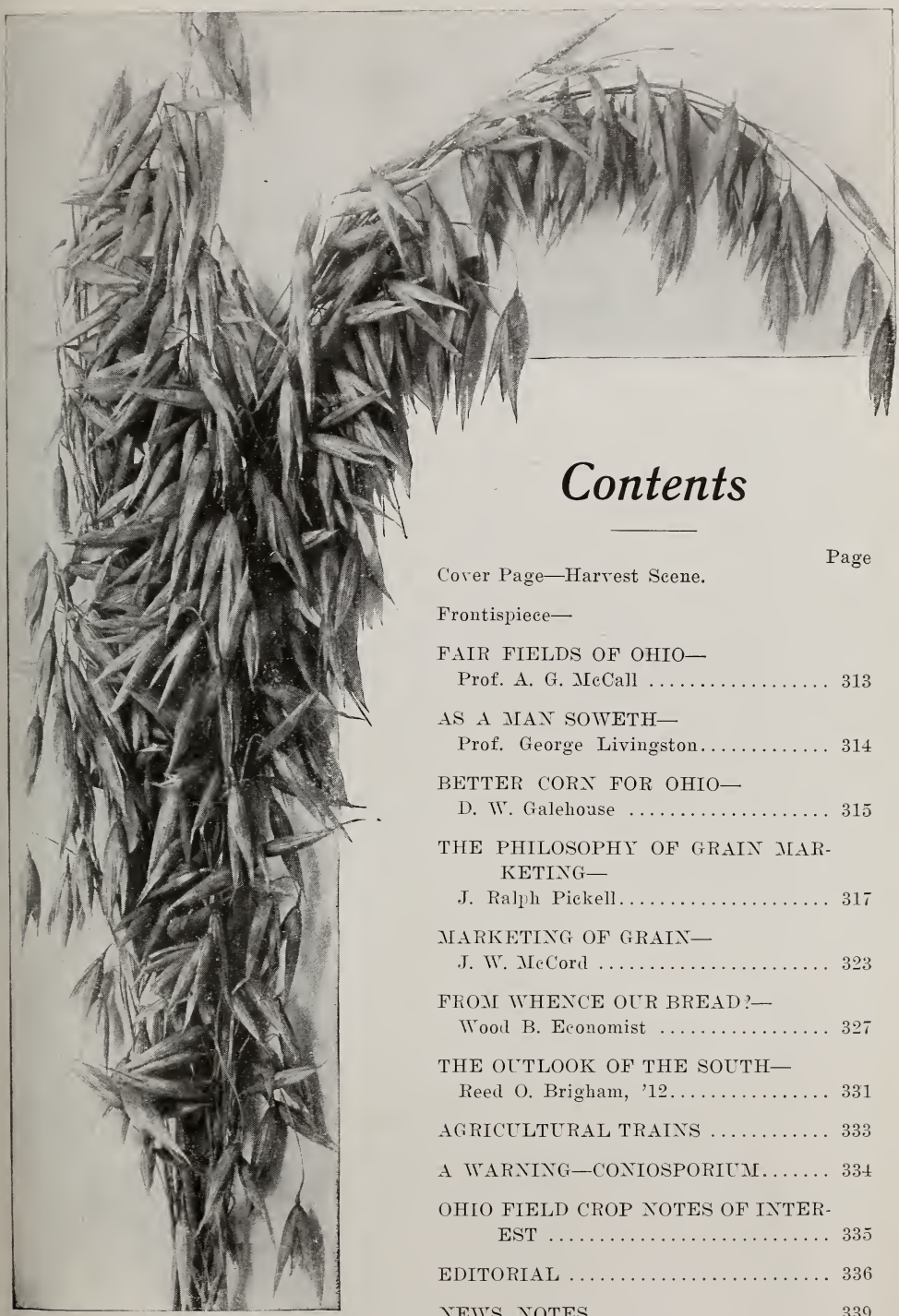
Our business has been built up by giving the very best of service to small and large customers alike.

We appreciate the patronage of the man who ships only one carload a year, and give his consignment just as careful attention as we do that of the man who ships many carloads.

Clay, Robinson & Co.

LIVE STOCK COMMISSION

Chicago, E. Buffalo, Kansas City, S. St. Joseph, Denver, E. St. Louis, Sioux City, S. Omaha, S. St. Paul, Fort Worth.



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FIRST AGRICULTURAL BULLETIN EVER PUBLISHED

Conn. Ag. Exp. Station — New Haven Conn
Aug 18th 1877

Analysis of "Composition for Grass" sold by Pollard Bros. Manufacturers and Dealers in Improved Fertilizers. 3 Custom House Square New Haven Ct.

Analysis on Barrels { "Organic and soluble Plant Food 8%" / Inorganic Matter. 5-4

Station Analysis & Valuation.

	Pounds per 100.	Pounds per Ton	Value per lb.	Value per Ton.
Water	16.72	637.5		
Vegetable Matter	13.92	227.7		
(Nitrogen of Veg. M.)	(.19)	(3.1)	18 cts	56 cts
Sand & Earth	65.27	1067.8		
Potash	.15	2.5	6 cts	32 cts
Soda	.29	2.8		
Lime	1.38	22.6		
Magnesia	.96	15.7		
Phosphoric acid	.37	6.1	5 cts	15 cts
Carbonic acid & Chlorine	1.00	16.4		

Value "estimated" } per ton { $1.03
Cost. } per ton { $32.00

As analyzed, the sample contains but 4 per cent of Plant Food." — 96 per cent is Water. Vegetable Matter & Earth, not worth barreling

The Lime, Magnesia & Soda have indeed a small trade value, but since they accompany Nitrogen, Phosphoric Acid & Potash in all good high-priced Fertilizers, their value is included in that of the last-named bodies.

The "Pounds per ton" statement includes, as water, the difference between the selling weight of 250 lbs per bbl. and the actual weight 204½ lbs.

S. W. Johnson — Director.

THE
AGRICULTURAL STUDENT

Vol. XVIII. OHIO STATE UNIVERSITY, COLUMBUS, FEBRUARY, 1912 Numbe 6

Fair Fields of Ohio

A. G. McCALL
Professor of Agronomy

TWO generations ago the Ohio pioneers left to their posterity vast forests of splendid timber, a rich hoard of mineral wealth—and the soil. Of these, the forests have already disappeared, the mines show signs of exhaustion and in many sections only the soil remains, but with its productive capacity seriously impaired.

Fortunately for us, however, every acre of soil that once produced a good crop can be made to do so again and, if properly managed, they will remain capable of renewing their bounty forever and so will agriculture be a live occupation long after our forests have been forgotten and our mines have ceased to give up their treasures.

Young men, you are now standing upon the threshold of a new era in agriculture, during which every acre of soil will be made to carry its full share of the burden of feeding the rapidly increasing population of the earth, and our plants and animals will be brought up to the full measure of their productive capacity. Our progressive farmers are giving us conclusive proof of the possibility of doubling the present productive capacity of our fields by means of more thorough drainage, systematic rotations, the careful preservation and use of stable manure, thorough, persistent tillage, and the intelligent use of commercial fertilizers. Experience has demonstrated that this upbuilding process is accompanied by increased net profits and that the improvement in fertility may be made permanent.

The plant breeder is revealing to us possibilities that can hardly be estimated. To quote Luther Burbank, "It would not be difficult for one man to breed a new rye, wheat, barley, oats or rice which would produce one grain more to each head or a corn which would produce an extra kernel to each ear, or another potato to each plant. What would be the result? In the five staples only and in the United States alone the inexhaustible forces of Nature would produce annually, without effort and without cost, 5,200,000 extra bushels of corn, 15,000,000 extra bushels of wheat, 20,000,000 extra bushels of oats, 1,500,000 extra bushels of barley, and 21,000,000 extra bushels of potatoes. But these vast possibilities are not alone for one year, or for our own time or race, but are beneficent legacies for every man, woman and child who shall ever inherit the earth."

When you look out over the fair fields of Ohio think of the abundant opportunities afforded by your own state for the fulfillment of these possibilities; the splendid soil, the diversified conditions, a humid climate, and the ready accessibility to the markets of the world. Have faith in agriculture, and in the fair fields of Ohio and hope will peep at you from every grain field, good luck will follow your footsteps, each hour will be crowned with pleasure, and each moment jeweled with joy.

"As a Man Soweth"

PROF. GEORGE LIVINGSTON

THE permanent prosperity of Ohio's agriculture depends largely upon the production of field crops. It matters not whether the individual farmer is a dairyman or a producer of live stock, his success in his chosen line will be measured to a certain extent by his ability to make the acres which he controls produce abundantly. The dairy cow is profitable only when she is well fed, the number of animals which the live stock farmer, whether he be a producer of grade or pure bred animals, can profitably produce on a given area will depend largely upon the yields he is able to obtain from pasture and cultivated field. Too often the dairyman or the live stock farmer fails to take sufficient interest in the production of field crops, upon which the degree of his success as a dairyman or live stock producer so largely depends. That a great opportunity exists for increasing the production of Ohio's fields is evident to every observer.

The dairyman or live stock farmer who depends upon a worn-out meadow and pasture to furnish forage for his animals must gradually reduce the size of his herd or purchase feed from his wiser brother. Old pastures and meadows can be made to produce abundantly again, as shown in numerous experiments, by the use of barnyard manure and fertilizers carrying a high per cent of nitrogen. According to Mr. C. G. Williams, of the Ohio Experiment Station, much of the level land now in permanent pasture could be made to support one-third more animals if put into ensilage corn or some good soiling crop.

In many sections of the state timothy hay is the chief farm crop. Meadows are mowed year after year, until finally a profitable crop of hay can no longer be expected, then a crop of seed is taken off and the field put under cultivation just long enough to get it back into meadow again. Statistics given in the bulletin on Agriculture in Ohio, recently issued by the census department, clearly bring out the fact that where such systems of farming, and others equally as depleting, are practiced land values are lower than where better systems are followed. The selling of timothy hay from the farms is probably no more depleting than the selling of some other crops, but the hay farmer does not seem to realize the importance of feeding the crop if profitable yields are to be maintained.

Another interesting fact from this bulletin is that leguminous crops are grown only in a limited way in the poorer sections of the state, while comparatively, a much larger acreage is devoted to their culture in the more fertile sections. Alfalfa, soy beans, clover and other soil building and valuable forage crops could undoubtedly be successfully grown in the poorer sections of the state if their value were more fully appreciated and the principles of their successful culture were better understood. The growing of these crops would not only enable the grower to support more live stock, but also to increase the value of the land.

The selection of improved strains of corn and small grains, the testing of seed corn, the treating of oats and wheat for smut, the control of the "cob rot," the moisture basis of buying corn, the enactment and enforcement of pure seed laws, and many other subjects usually believed to be of interest only to

(Continued on Page 341.)

Better Corn for Ohio

D. W. GALEHOUSE
Sec'y Ohio Corn Improvement Association

IN June, 1907, a committee was appointed by the Ohio Plant Breeders' Association, for the purpose of submitting plans looking to the organization of a State Corn Improvement Association. As a result of this action a meeting was called for January 15, 1908, to which one hundred and sixty delegates responded, and the organization was effected. A second meeting was held in connection with a corn show at Townshend Hall, Ohio State University, Columbus, Ohio, November 23-25, 1908. Local associations were organized in more than fifty counties during the first year after organization. This phenomenal growth was due, largely, to the untiring efforts of the Secretary, Mr. L. H. Goddard, of Woos'er, Ohio.

The shibboleth of the Association has always been, "More Bushels of Marketable Corn per Acre," and this thought has ever been kept before the members of the association as a spur to greater efforts along the line of corn improvement. The first experimental work taken up by the association was the corn variety test. Nearly every local association in the state has taken up this line of work and some very valuable results have been obtained. This work is still being conducted by local associations, in co-operation with the Ohio State University and the Ohio Experiment Station. Many associations have gone still farther and have con-

AN ACTIVE MEMBER.

ducted ear-to-the-row tests, followed by the breeding, or seed corn plot.

Four annual corn shows have been held since the Association was organized. The first one, as stated above, was held in Townsend Hall, Ohio State University, November 23-25, 1908, and was considered a great success. The second show was held in the Lazarus Block, Columbus, Ohio, in conjunction with the annual Apple Show of the Ohio Horticultural Society, January 10-11, 1910. The third show was held at the State Fair Grounds, Columbus, Ohio, January 30 to February 11, 1911, in connection with the National Corn Exposition. The fourth show was held at Springfield, Ohio, January 16-20, 1912, in connection with an industrial exhibition of products manufactured in Springfield.

At the annual meetings of the Association, addresses are given and papers are presented, which have something to do with the culture and improvement of the corn crop. Men of national reputation are secured for these meetings and the proceedings are published in full in the annual reports of the Association. The last meeting was one of unusual interest. Many requests have already been received for the proceedings of the meeting, which will be published, in full, in the next annual report of the Association.

All members of local and County Associations, also members of the State Association, receive the reports free of cost. The executive committe has fixed the price of the annual reports at 25c per copy, which may be secured from the State Secretary, Wooster, Ohio. Any one desiring to join the Association may become an annual member by the payment of an annual membership fee of 50c to the State Secretary.

The Ohio Corn Improvement Association proposes to improve Ohio's corn crop both in quantity and quality by encouraging growers;

To select the best varieties for their soil and purpose;

To select their seed in the fall from the standing corn;

To care for it properly during the winter;

To make a germination test of each ear, individually, in the spring;

To use the best rotation of crops;

To use stable and green manure in the best manner;

To apply the proper commercial fertilizers;

To prepare the seed bed in the best possible manner;

To cultivate the crop in the best manner;

To use the best methods in harvesting and disposing of the crop, whether it be taken to the elevator or fed to live stock as grain or silage;

And always to do all of these by the most economical methods.

The Association proposes to do this by encouraing local associations;

To have neighborhood or county corn variety tests;

To have special corn sessions at their local farmers' institutes;

To have local corn shows and send corn to the state and national expositions;

To interest the boys and girls in studies of all corn questions;

To arrange for better premiums at county fairs;

To assist local people in selling all high quality seed or in purchasing, if need be, seed of a similar quality.

The Philosophy of Grain Marketing

J. RALPH PICKELL
Sec'y Council of Grain Exchanges

ALL men are philosophers; some philosophize well and others ill. But philosophize we must, for a philosopher, as we understand him, is a seeker into the reason and nature of things. Our purpose, then, is to seek into the reason and the nature of grain marketing.

I shall never forget the first time I visited the Chicago Board of Trade. I had just completed my sophomore year in college. I ascended into the gallery where thousands of visitors go in the course of a year and I saw there before me, first, the wheat pit, then the corn pit, and to the right the provision pit and the oat pit.

On the extreme left were sample tables containing hundreds of samples of grain, and scores of men were busily engaged in examining these samples, smelling, tasting the kernels of corn and wheat and otherwise determining upon their value.

To the extreme right there were over a hundred telegraph operators busy at their keys receiving and delivering messages, and above it all, rose the din and tumult of the trading in the pits. After I had viewed this commercial activity for a time and had rather assented to the proposition of a lady next to me, who said that she thought the "state lunatic asylum ought to be put on wheels, run up to the back door and the whole shooting match chased in," I retired to the privacy of my humble study and wrote the following paragraph:

"What means this spectacle of excited men leaping furiously into the air and yelling as if pandemonium had broken loose, what is this human drama which makes the blood leap like mad?

THE FIRST STAGE.

Why the shouting and the tramping of the traders in the wheat pit, in the corn pit, in the oat pit, the whirring of telephone signals, the clicking of telegraph keys, the raucous intonations of the messenger boys as they scurry across the floor, why this commercial war, whose sounds mingled and prolonged, reverberate from vault to vault in thunderous diapason?''

Since then I have been endeavoring in an academic way to secure an answer to my hypothetical question. Since I left school, I have found that the actual knowledge gained has been of little value to me, although I have continued my literary pursuits. There is a great divide between commercial literature and that of the class room. I have come to believe that the true philosophy of life is a philosophy of service, and that those who are rewarded most opulently are those who serve most faithfully and intelligently.

And I care not in what insignificant spot you may in the future be located, I care not where the hours of your day may be spent, if you conscientiously and intelligently discharge the duties which confront you, thereby rendering service to your fellow-man, you will succeed.

It is necessary for us to begin with the farm. Some of us expect to end there, and let me say now with all the emphasis which I possess, that I know of no better vocation, offering more inducements to the average young American, than those which are presented through agricultural pursuits. The soil is the source of most wealth, and for those who can intelligently cultivate the soil, nature holds abundant harvests and profits. The farm needs brains as well as brawn, and of course if most of us go there the farms will have it. The time has come when slipshod methods of farming, inefficiency and crudeness will not be tolerated, for we have reached that epoch in our history when consumption is fast overtaking production and, from now on, the tiller of the soil must be a thinker as well as a doer.

In making this statement, I would not cast even the semblance of a shadow on the memory of your fathers, many of whom I know were farmers. Your fathers and my father were the pioneers in this country—it was their fate to endure hardships, physical and mental, of which we have little dreamed and to blaze a pathway for civilization in a country where not only the soil and its seas were unconquered, but where even the government itself was an experiment. Fondly do we cherish their memories and across the evening of their dreams there comes from them an inspiration and a hope. But times change, the world moves; every atom of every stone of every rock-ribbed mountain, every molecule of every drop of water in every ocean is in constant vibration. The world swings around the sun and the sun toward the north star. In the realm of nature there is motion, eternal motion, and so I hold that those of us who are content to follow in the paths which our fathers trod are unworthy of our splendid heritage and opportunities.

When the farmer plants his seeds he becomes a speculator. He does not know whether the water and the sunlight of heaven will find it in proper quantities to mature it. When he harvests his crop and sells 5,000 bushels of grain to be delivered at some future time to his country merchant, he becomes the first trader in futures. The farmer, therefore, is the first real speculator and let us note now, that irrespective of what we may think concern-

ing speculation, speculation pure and simple is thrust upon us by Providence, who has decreed according to nature, that in some seasons in some localities there shall be abundant harvest, and in others there shall be want.

There are some exceedingly important changes which are transpiring in the agricultural mind today, and for the first time in the history of North American agriculture the farmer is beginning to learn that necessity demands he shall properly grade his grain upon the farm. He is beginning in an efficient manner; that he must be an able judge of grain, otherwise there is no excuse for his existence and it is pertinent now to suggest that there is a great movement on foot in this country which has for its purpose the elimination of the middle man, and, unless the country elevator operator awakens to the necessity of conducting his business upon a business basis, he will be eliminated by the farmers who will seek direct connection with the consumer.

It is true today, however, that the grain business is handled for a smaller

IS THIS SPECULATION?

to learn that he cannot sell water for food, and I sincerely hope that when we have taken up our abode upon the farm and deliver our grain to the country merchant that we shall insist upon being paid for grain according to its grade; when we deliver No. 2 corn, insist upon receiving a No. 2 price, and I hope the country grain dealer who buys our grain will insist upon paying for No. 4 corn if we deliver a No. 4 grade.

The country grain merchant is beginning to learn that his occupation is a profession; he is beginning to understand that he must maintain his plant per centum of profit between the bins of the producer and the larders of the consumer than the profit of any other like commodity of trade. The grain business is a world business and every bushel of grain which is harvested on every plot of ground in every township, county, state or nation is an important part of the aggregate, which makes his calling of primary importance to the human race.

When the grain dealer purchases the produce of the farmer, if he is alert to his best interests, he often hedges the grain; that is, when he has bought 5,000

bushels from the producer he immediately sells a like amount on some terminal market. If he is located in Ohio, he will probably transmit the order to a Toledo grain merchant, who in turn forwards it to a broker of the Chicago Board of Trade. Practically all of the future trading in grain in this country is centered in Chicago, because Chicago is the greatest grain market in the world, where capaital is ample and storage facilities are unsurpassed. If a dealer purchases his grain in December he probably sells grain for future delivery in May. If the price of grain should go up before the grain is marketed, the country dealer loses on his sale of grain for May, but he makes his profit on the increased value of the grain which he has purchased from the farmer. If the price has declined when the grain is shipped to market he is able to buy back in the same market in which he sold grain for delivery on his future contract at a price lower than that for which he originally sold. He therefore makes a profit on the sale for future delivery, but he likewise loses on the grain which he has purchased from the farmer, but by hedging his grain, the grain merchant has protected his purchase and clinched his profit. Hedging, therefore, is insurance which protects the producer by minimizing the risk of the middle man and thereby enabling him to handle the grain on a small margin of profit since his risk is small.

Perchance it may happen that this grain dealer is a stock dealer, he has purchased his stock at a known price and he expects to market them in a certain month. He therefore transmits an order to his broker to buy 50,000 bushels of corn for future delivery in May at a specified price. This grain dealer does not expect to receive that corn from the terminal market, but he knows exactly what it will cost him if necessity demands that he secure the corn in the market. In the meantime he will buy thousands of bushels from the country producers in his neighborhood, and just as fast as he buys 5,000 bushels of grain in the country round about he will sell 5,000 bushels of grain through his broker to apply on his future contract. If the price of grain fluctuates during these purchases he will either lose or gain on his future contract and likewise he will be able to buy from the producer at a higher or lower value according to the market. He is absolutely certain, however, that his corn will cost him a certain specified figure on account of his hedging purchase.

It will be noted that in either of these cases cited the country dealer did not receive or deliver one bushel of grain to his broker, and yet where is the man who will say that this trade was not a legitimate deal, because in these instances the producer was protected and the grain dealer as a stock feeder was protected? Yet there is a tremendous amount of public sentiment in this country represented in the halls of Congress which would pass laws to prevent a man from selling anything which he did not intend to deliver or to prevent him from selling grain which he did not have in his possession, thereby eliminating hedging and its minimized risk.

The paramount question now is, who absorbs the hedge of the grain dealer in making his purchase or sale, and we answer at once—the speculator. The speculator, so little understood by the average layman, the target of the legislators, the reformers, and public opinion generally.

Economists and those who are actively engaged in the grain business and

devote some study to the speculative marketing of grain realize that the speculator is an important adjunct of grain marketing, the speculator who with his trained brain and ample capital stands upon the pinnacle of his knowledge and surveys the world-wide conditions of supply and demand. Mr. Justice Holmes, in rendering a decision involving the Chicago Board of Trade, said: "People will endeavor to forecast the future and to make agreements according to their prophecy; speculation of this kind by **competent** men is the self-adjustment of society to the probable." Mr. Holmes says "competent" men and therein lies the difference in my opinion between the speculator who actually performs an important function and the gambler who merely takes a chance, and in speaking upon this subject throughout the country I have endeavored to make it clear that it is the business of the farmer to raise the grain; that it is the function of the grain dealer to clean, grade and market that grain at a reasonable profit; and that it is the function of the speculator to relieve all of the burden of financing that grain by accepting the shifted burden of speculation. Any farmer or any grain dealer or any person occupying a fiduciary position of trust, who attempts to reap a livelihood from fluctuating grain prices is a quack speculator, a counterfeit and a curse to the grain trade. It seems to me that there is no more important mission for the average speaker upon grain problems today than that of issuing a warning to those of their fellow-men who desire to take a "flyer" in grain.

When the country merchant ships his grain to market, the car is placed in the railroads yards where it is inspected usually by a representative of the weighing department of the terminal market, who endeavors to discover signs of theft or leakage. Proper notations are made upon blanks so that in case of theft or leakage the shipper may promptly collect his claims. The next man to the car is a representative of the inspection department, who likewise investigates the physical condition of the car and draws samples from it with a trier. This grain is then graded according to its value in the office of the inspection department and a sample from each is sent to the trading floor of the grain exchange, where it is sold on its merits. The car is then likely to be ordered to a public warehouse, where the grain is deposited in a bin with grain of a similar grade and a warehouse receipt known in commercial circles as "grain paper" is issued for it. The grain may then later be ordered out for export, or to some country miller or consumer.

In Chicago today there are about 20 million bushels of wheat largely owned by four or five speculators. This grain was purchased some of it about two years ago above the dollar mark, and since then it has been carried at an enormous loss in price and rates for insurance and storage. These speculators believed when they purchased that grain that its value would be greater, otherwise they would not have bought it. Since they purchased it, one year ago last May, they have been using spectacular methods to get rid of it, but to little avail; they misjudged the law of supply and demand which ultimately, invariably and irrevocably governs grain prices.

James A. Patten is probably the foremost speculator of modern times and also the most successful. His methods have been censured by those engaged in all lines of commerce, but the fact remains that he is a wonderful judge of

values and he has accumulated an enormous bank account because of his expertness in judging values, but I wish to say now that I do not believe his profits have been greater than the risks which he has assumed in buying grain. Mr. Patten is not today so active in the grain business as he has been in years past. He has been devoting most of his time to charitable work, but many seasons will come and go before another James A. Patten strides across the trading floor of the Chicago Board of Trade with his keenness, his alertness and his wonderful grasp of the law of supply and demand. Mr. Patten told me in the only interview I ever had with him, "Demand we have with us always, and it is the business of the speculator to determine as quickly as possible what the supply will be and then to find the answer in price."

The bucket shop is an institution which the legitimate grain exchanges of this country have spent millions of dollars to fight. It is an imitation Board of Trade where bets are made upon the fluctuating of the market. The trader takes one end of the bet and the operator of the bucket shop takes the other. No grain is ever delivered or received. On the Board of Trade, however, when grain is sold it must be delivered by some one, and when grain is bought it must be received by some one; no other tactics are tolerated. If A sells to B and if B sells to C and C sells to D, then A must deliver the grain to D ,while B and C close out their trades, taking either their profit or loss, but the grain is always delivered, although the actual number of bushels delivered is not by any means equal to the actual amount of grain traded in. This is largely accounted for in the explanations of the hedging trades to which I have referred, where the country dealer sold grain which he did not deliver to his broker.

Our conclusion is then, that some one must own the grain, that someone must own the surplusage of the 5,000 million bushels of grain produced in this country annually if there is no export demand for it, if the consumer does not desire it or if the miller does not wish to purchase it for his mills, the logical owner therefore is the speculator who is willing to assume a risk, who is willing to take a reasonable chance.

Boards of Trades are organized to give the speculator and the buyer and seller of grain a meeting place where grain may be bought and sold. I believe they will exist as long as the church or school house. It is probable that they may be passed through a crucible of public opinion before they are cleansed of the many evils enshrouding them, but the foundation upon which they are built is as firm as the battlement of state, and the true principles which they were organized to protect are as everlasting as the spirit of brotherhood. We are pre-eminently a nation of speculators; the love of hazard is as surely imbued in our national fibre as the love of liberty. The East speculates in railroad stocks, the West speculates in mining stocks, and the Central States in produce, and this spirit of speculation cannot be legislated out of us, nor quenched within us for generations, if ever. Speculation is a steam power most efficiently utilized. It is electricity most successfully harnessed—it is finance most ingeniously applied; it is the natural desire of a normal man who is not afraid to take a reasonable chance.

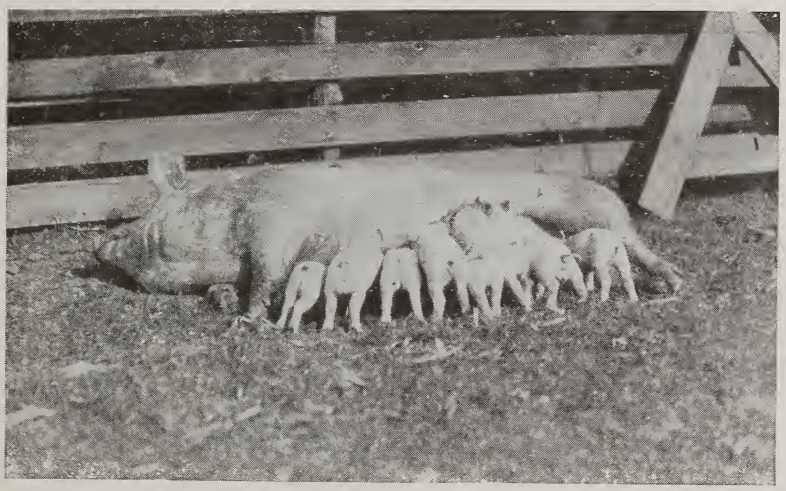
This is the foundation for reason and knowledge concerning the nature of grain marketing.

Marketing of Grain

J. W. McCORD
Sec'y Ohio Grain Dealers' Association

INCIDENT to the proposition covered by this subject is the necessity of a comprehensive knowledge of the value of the grain to be moved from the farm for distribution to the consumer.

This knowledge can best be obtained by a careful analysis of the "Year Books" of the United States Department of Agriculture. The statistics are complete in every possible detail and phase of the subject that can be expressed in figures. I am free to say that from the data compiled one can obtain a correct answer to any pertinent question that might suggest itself.



THE BEST WAY TO MARKET GRAIN.

These are some of the data related to the marketing of grain: The surplus grain states named in groups, for corn, wheat, oats, rye, barley, etc., etc. The amount of grain retained and consumed on the farm; the amount sold to the market and to what market, whether a consuming or an export market; crop yields in the aggregate and by states; yields per acre; comparative yields and prices by years and by five and ten-year averages; total crops of foreign countries; available supply for export by exporting countries; consumption per capita; cost of transportation; shrinkage, deterioration and depreciation while in storage; cost of storage, including interest on the value; insurance, etc.; value of grain for stock feeding purposes on the farm compared with the value received when sold from the farm as grain. You should closely observe and analyze markets and market conditions, local, domestic and foreign. Watch the movement, the visible supply, the accumulation in the terminal markets, storage capacity, supply of cars for transportation, vessel room on lake and ocean. These factors all have a bearing on the marketing of grain and prices are affected more or less by these conditions.

The subject can be best treated by considering it under two distinct and

separate heads, the physical and the commercial. These phases of the subject are very closely related and interdependent; it is difficult to determine when and where the physical ends and the commercial feature begins.

We know that all grain, even though deficient in quality from natural causes, or otherwise deficient in value, is of commercial value and can be sold for a reasonable price.

In considering the subject from its physical side, we assume that the producer and likewise the receiver at first hand, recognizes the fact that the grain must be prepared and handled in such manner as will render it free from all infirmities that can be removed consistent with the labor and expense required, keeping in mind that merit and intrinsic value is the test which will ultimately be applied in the final disposition or sale of the grain. With the improved appliances and methods we have for determining the moisture content, the amount of dirt and foreign matter and the percentages of the different constituents of value, you may be assured that the grain will be subjected to close scrutiny and rigid examination on each change of ownership. As a result of many years of research and experiment, there has come into almost universal use a system of inspection and grading which is conceded to be very nearly equitable, in classifying the different grades of grain under a proper grade for each average kind, quality and condition; so that each time a quantity of a certain kind of grain is offered for sale it is not necessary to undertake the tedious and expensive operative test which underlies the grading basis first determined by great care and minuteness.

The grades of grain adopted by the Grain Dealers' National Association about six years since represented at that time the very best and most practical experience of over forty years' work of the inspection departments of the public grain exchanges of the world. These rules from year to year have been modified ,changed and amended to meet requirements of new and changed conditions, demonstrated by actual experience as necessary to secure equity and fairness. They are now the standard used by practically all of the exchanges of the United States, modified only to meet certain climatic and local conditions not in common with the whole territory covered by their use.

The average producer has come pretty nearly to a correct knowledge of standard grades of grain. He knows that the buyer of his grain works on a standard, of Number 3 Red Wheat, Number 3 Corn and Number 3 Oats. We know that all of the wheat, corn and oats produced on the farm, or even all of that part which is delivered to the market, will not meet the requirements of the standard grades; twenty per cent may be under, or off grade; sixty per cent equal to grade; twenty per cent over or better than standard. The time is at hand when producers and buyers should in no weak and uncertain manner insist that grain should be bought from the farm on its merits—on grade. You are, or at least should be, putting forth your best efforts and applying the best scientific knowledge you can, to produce better grain and more grain than heretofore. The buyer must pay the proper value for the better grain, and to do so he must buy the poor grain at a corresponding reduced value. By careful study, unless you are selfishly biased, you can obtain sufficient knowledge by which you can determine ap-

proximately the grade that should be applied to your grain.

If you are a careful and painstaking producer, you have a right to expect a proper reward for any superiority inherent in your grain, as compared with that of your neighbor who has produced,, either by accident or lax methods, grain inferior to yours. You should receive the premium; he should be subjected to the discount that equitably attaches to the superior and the inferior. The grain dealers of Ohio are working

"THE LABORER IS WORTHY OF HIS HIRE."

up this idea of equity; it is one of the substantial incentives to better farming and must ultimately be one of the great controlling factors of better and greater production, and increased profits in your farm operations. If it pays to raise good grain that will sell for a good price in the markets, it will also pay to raise good grain to feed on the farm to good stock that will also sell for a good price.

Now let us consider the commercial side of the proposition. Our supply of grain to be sold from the farm, that which enters into commerce, whether state, interstate, domestic and foreign, should be so conserved as to be distributed economically throughout the entire crop year; there should be no congestion in the markets at harvest time, no scarcity between harvest seasons, no seemingly over-production and no substantial evidence of considerable inadequate supply. A careful study of statistics of prices, their fluctuations, abuses of speculation and other abuses of the trade of the past quarter of a century will disclose to you an astounding relation which should stand us well for the future, if properly digested.

An intelligent knowledge of crop conditions, supply, demand, domestic and foreign, will aid us in the profitable disposition of your surplus farm products. Do not unjustly criticize speculation, accumulation of grain in store at the great grain markets. Remember that these factors are protective and necessary adjuncts of the business; otherwise, your grain might be subjected to an unreasonable variation in prices in any one year or in a series of years. We read in Holy Writ, which is

not wholly void of commercialism, that Joseph made ample provision, for distributing the corn crop of Egypt over a series of years, so that the surplus production of a year of plenty could be set off against the lean year. This, in practice, is what the present day speculation—the immense elevator capacity of the great terminal markets—is doing. Apply this same principle in your own small or great production, and you will contribute very greatly to the stablity of fair and remunerative prices.

There is no commodity, natural or manufactured, that is handled with such care, economy or with such certainty of reasonable profits as grain. Nothing produced from the soil, the mines, the factory or the work shop can be converted into cold hard cash as quickly as grain. We often hear the expression, "As good as old peach pie in the cupboard," when we wish to express stability of value. How much better and more timely can we express the idea of stability and protection from financial distress, by the use of "As good as old wheat in the granary?" I have had conservative, intelligent farmers tell me that they considered wheat in the granary, corn in the crib, as safe as money in the bank. I fully agree, for money is always on the lookout for grain, while grain very frequently is not looking for exchange into money.

I shall not go back into history to tell just how grain has been markted in bygone days; we can learn of that, and with great profit, by reading the reports of the greater grain exchanges of the country. Their statistics are very interesting, covering every phase, receipts, shipments, exports, the extremes of high and low prices for each year and each month of the year, cost of transportation during each of the many years since the advent of the great canal system of the 40's and railroad transportation in the 50's.

You who are to produce this much talked of "Better Grain" and "More Grain" are vitally interested in the disposition of it, for you will have a surplus. There is no danger of an overproduction, no danger of unprofitable prices; the world wants your grain, all you can produce. It can use it at a fair profit to you.

Nearly all of you are, no doubt, from Ohio farms; you should be proud of it. To be an Ohio farmer is an honor; you do not have to doff your hat to anyone, or apologize for your calling in life. In these days of progressive scientific agriculture, special training for scientific farming, you are on a par if not at a premium among the honored professions; none stand higher. All must bow to you, the producer of greater wealth than all else. You lead, the others tail on, depend on you in large degree for existence and subsistence.

After you have exhausted the marketing problem from the narrow confines of your farm, and your own country elevator facilities, reach out beyond, go to the terminal market, the grain exchanges, Chicago, Toledo, Cleveland, Buffalo, New York, Baltimore, Philadelphia, and should you go abroad for pleasure or business, visit the London, Liverpool and the continental markets. You will find a welcome in every grain market, on any grain exchange, in any inspection department in the world.

Space will not permit me to go very far into detail of the corn, oats, rye and barley propositions. However, you are corn enthusiasts and know that there is more hard work, greater risk and even greater opportunities for profit in corn

(Continued on Page 343.)

From Whence Our Bread

WOOD B. ECONOMIST

"BREAD, bread, bread," the muffled cry of mankind has echoed down through all the ages since the birth of the human race, ofttimes, when the hot breath of famine was over the land, in atone sinister and menacing, but most times, thanks to an All-seeing Providence and a kindly Mother Nature, a mere, ever-present monotone, toneful accompaniment of the busy hum and steady throb of the wheels of industry and progress. Man must grow and develop, produce and reproduce, always looking to "the staff of life" for the energy, the imprisoned coltage of the sun with which to supply that wonderful dynamo which we call the human body. Thus it is that the wheat problem has always been a universal one, born when men first began to hunger, to be ultimately disposed of only with the extinction of the physical human race. We can not hope, nor even desire, to dispose of the wheat problem, but in rendering it infinitely more easy of solution because of the bearing which a scientific study has on it, this present scientific era will have left a brilliant, matchless record on the pages of history.

Civilized man needs bread so badly that it may be termed one of his prime necessities. The peoples of the United Kingdom and European countries are the greatest wheat-bread eaters of the world. Meat with the masses is to be classed rather as a luxury, but wheat-bread is now a necessity in the superlative degree. It is a significant fact, indeed, that Europe, Russia excluded, can produce but a small fraction of the wheat necessary to maintain the existence of both the nation and the citizens. Britain especially is a commercial nation

IN OHIO.

and absolutely dependant on foreign supplies for bread, the most common food-stuff on her tables.

Besides the question of actually feeding a multitude of people, this wheat question has an even broader and more important economic scope. Producers must sell their product, dispose of their surplus, else they in turn will suffer for other things scarcely less necessary than wheaten flour. England is the wheat mart of the world. Through her channel of trade flows the surplus of the nations. From this very fact she is able to set the price of wheat all over the world. It is not what we use ourselves or keep at home that influences price, but it is the supply of our surplus, what we have to sell, that determines whether we have a new auto or piano, or whether we mortgage our dining room set to buy calico dresses for our children during the next year. The vast majority of American farmers are growers of wheat in some degree. Upon its surplus largely depends the estimation of their prosperity. The price of that wheat in turn depends on the supply and demand through the British marts. Thus we are all more vitually and personally interested in the wheat problem than we may have thought at first.

In 1909, the United Kingdom needed 210,489,422 extra bushels to feed her working hordes, over 50,000,000 bushels more than the United States ever had to sell in her history, and over 120,000,000 bushels more than we had for foreigners in that year, 1909. The United Kingdom only has about $1\frac{3}{4}$ millions acres to seed to wheat each year, from which she gets 55,000,000 bushels, just enough to give her people but a fifth of what they now get for each meal. But let us Americans, who think ourselves real farmers, remember that Britain on her $1\frac{3}{4}$ millions acres is producing 32 bushels per acre, while we, on our magnificent 50 million acres produced but 12 bushels per acre in 1910. Did we but raise our average yield to Britain's figure, and there is not a single reason why we should not, we ourselves could easily supply all the markets of the wheat importing countries of the entire world, whereas now we fall far short of being able to supply the bakeries of Britain alone. But even a casual glance will give us the ideas as to Britain's need and dependence in the wheat line.

Of these other European countries, Russia, Roumania, and Servia alone, produced a surplus of wheat in 1910. On the other hand, if people were to be fed, there must be dumped into the yawning bins of Germany 74 million bushels, of Belgium 50 millions, of Italy 47 millions, of Austria-Hungary 27 millions, of Holland 21 millions, of Sweden, 7 millions, of Denmark 6 millions, of Portugal 4 millions, of Spain $3\frac{1}{2}$ millions, of France 3 millions, and of Switzerland 1 million. Thus in addition to England's urgent demand for 210 millions of bushels of wheat in 1910, the other European countries must be supplied with 243 millions more of bushels. But stand not aghast, for the surplus of Russia, Argentina, the United States, and Canada, just about fills the need, leaving the supplies and demands of the smaller producers and buyers free to seek an independent adjustment. Not that anything like this actually happens, but it merely shows that there was in 1910 naught to alarm us. Of the future we are not so sure.

Now as to the supply. The 1910 reports show that Russia had by far the most export wheat of any country in the world, 193.5 millions of bushels—her nearest competitor, Argentina, being nearly 100 million bushels in her rear.

Russia, then, is easily the "Granary of Europe." Noted for the fertility of her fields and with the proximity of her ports at the door of the source of supply, she is in an easy position to dominate the world's wheat situation, but for one thing. That thing is the ignorance of her peasantry. Did they but have a few brains to mix with their black soil, who would calculate Russia's resources? But that can only come with a fall of the present system of Russian bureaucracy and the substitution of enlightenment and education for the dense ignorance of the benighted peasantry. The system of farming is primitive and inadequate. With the exception of India, Russia has the lowest yield per acre in the world, with 10½ bushels. Russia is by all odds the wheat producer of the world, and with 30 bu. instead of 10 per acre she will assume her real place. That time is sure to come. Sooner or later science will triumph and Russia will produce what she should.

Argentina exported 40 millions less bushels in 1909 than in 1908, so we presume she has reached the limit of her wheat production. As in our own country, bonanza days are passing there, the pampas are being converted into small farm homes, many more people are coming to be fed, and her surplus declines. But Argentina, at that, will probably continue to be one of the quartette of the world's largest exporters.

Australia and British India, in 1909, exported 37½ and 40 million bushels respectively, and with improvement of methods and development of vast resources, these figures will certainly rapidly increase, not to stop until trebled, in all probability.

THE LAND OF PLENTY.

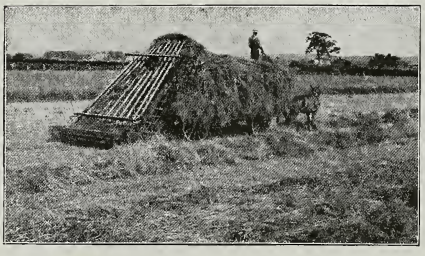
Roumania and Africa will undoubtedly have some influence upon the world's future wheat supply.

From now on our own exports are almost sure not to increase. With a fast increasing population, and the vanishing of our bonanza wheat fields of the West, and the substitution of more intensive culture in place of wheat stub-

ble, we shall do well to feed ourselves at the present rate. But why at the present rate? Is American intellect to be clouded that we can not follow plain advice from the best scientists in the world? Even when our Experiment Stations have proven the lesson, can we not follow? With 30 bushels for our present 12, we can again proudly proclaim ourselves as masters of the wheat situation. And it is on our very shoulders, individually, that the task is then devolving. "Let us then be up and doing," quoth Longfellow. Well, let's!

Canada, with her recently discovered Northwest, is in the future sure to be England's favorite child and provider. Her 60 millions for export merely represent the dripping of what is to be the full flow later. Alberta, Manitoba, Saskatchewan, proud of past achievements, must in the future take a back seat in the presence of the boundless Northwest and the ultra-hardy varieties. But who is responsible? American farmers flocking o'er the border. Then should not Canada be ours in fact as well as in spirit? At any rate Canada is to be the future wheat field of the world, that is certain. The icy breath of Boreus prohibits the small farmer from obliterating the drill marks in Canada as he did here, and from climate, soil, and peoples, Canada will for the future predominate Europe's bread basket.

Thus may be look at both the supply and the demand, the consumers and the producers. We have seen the rise and fall of nations as great wheat producers. In our section we are no longer primarily wheat growers, but the future—the future may see revolutionary things. When once the demand of Europe exceeds our—i. e., we on this side of the "big pond"—our ability to supply, price will go up maybe to $2, nay $3 per bushel. Afford to eat bread? Certainly, for with this there will go a real readjustment of tariff, of shipping rates, of commissions, of all the charges creeping in from our straw stack to the oven, so that the farmer will begin to get his real share of the selling price. Then will it be possible for our small farmers to profitably maintain wheat in his rotation, and then will the wheat problem be solved for all time!



The Outlook of the South

REED O. BRIGHAM, '12

DURING the holidays it was my privilege to make a brief and hurried trip through "Dixie Land." This little break in winter seemed like an oasis in the desert, going from the land of snow and ice to one of sunshine and flowers. Like going to sleep in the midst of winter and waking in the springtime when the birds were singing and the violets blooming.

As one travels through this land of the Sunny South with its delightful climate, he asks the question, "What are the opportunities here for the young man?" As he beholds the vast stretches of land uncultivated and uninhabited and then thinks of the high cost of living and the cry that the population will outgrow the world, it seems inconsistent. There are vast stretches to be developed, but the Southerner lacks thrift and ambition, so new blood must be brought in to develop the South.

What has become of the wealth of the South that we used to hear of before the days of the war? With the loss of the slaves the South lost her wealth. With cheap labor and her crude methods of farming she was able to make money, but without her slaves her agricultural system was paralyzed. So it seems that with Northern blood, with its vitality and capital, of which the South is much in need, there ought to be some opportunity.

The two great crops of the South are turpentine and cotton. The old method of slashing the trees and thus obtaining the turpentine is fast fading away, due to the complete exhaustion of the supply, for the greatest limit is thirty years; but here in this great industry Northern minds have seen an opportuniay and Northern capital has been quickly supplied, so that within the last year two great factories have been started, using the new process of extracting turpentine and rosin from the old stumps, roots, dead wood, and sawdust of the pine trees. It will take many years to exhaust this supply.

A SOUTHERN CHAMPION.

The agricultural field has not so quickly been seized, and probably due to the fact that the need has not been so strongly felt. Cotton is still raised in the same old way with its poor yield. But perhaps the time is not yet ripe for the better way. This year I saw acres of cotton, which had not been picked, due to the fact that cotton was so cheap it did not pay to gather it.

Potatoes may be raised and good yields obtained with two crops a year, and in Southern Florida four crops. Sweet potatoes and yams also afford a good crop.

St. Augustine, that quaint old town, the oldest in America, with its Ponce de Leon's Fountain of Youth, a city of 8,000 people, 5,000 of whom are colored, takes care of 10,000 Northern tourists each winter; in this picturesque old town, the center of which is the old slave market, now free to the men and women who in the dark days of our nation were sold upon it, I visited an orange grove of about four acres. This grove is kept for the patronage of the tourists, and I might add that the man who is catering to the tourists with money to spend is the man who is making money in the South. Here the visitor can have his picture taken picking oranges from the tree at seventy-five cents a dozen (the pictures, not the trees or oranges). In the culture of this orchard much spraying and fertilizing, they told me, was necessary to keep it in good bearing condition. As this is in Northern Florida, they must protect against freezes. This is done by means of Hamilton and Troutman heaters, about one heater to each tree. The people of this orchard claimed that they could not compete with those of the South except in tourist trade, due to the great expense of heating and operating.

From here I crossed Northern Florida, a great stretch of land yet undeveloped, and arrived at my last view of the South from an agricultural consideration. The gardening district of Mississippi at Gulfport and Long Beach is a place where many Northerners have settled. Here crops are raised during the winter for the Northern markets. The soil is sandy and the water drains rapidly from it, so that tile need not be placed very close and, as it does not freeze very deep. It it necessary for these gardeners to do much fertilizing. The great crop here is "King Radish." Radishes are shipped by the carload and when the market is good they receive ten to twelve dollars a barrel, discounting two dollars a barrel for freight; but when the Northern markets are flooded they may drop to five dollars a barrel. Much head lettuce is also raised here. Everything grows well, due to the heavy rains which occur in spring and fall, amounting to about eighty inches. But during the summer it is dry and irrigation must be resorted to. Although there are possibilities here with capital, there are also drawbacks, the land is undeveloped and much is not cleared or drained and is low and swampy. The community is new and one must be a pioneer on the frontier. The dangers of freezes and destroying of crops unless they use canvas covers is great; the price of the land because of booms is high, about seventy dollars an acre unimproved. But the greatest drawback is the distance from market and the danger of a flooded market when the crops arrive, so that they cannot successfully compete with the greenhouses of the North.

Another industry advertised by the real estate men is the pecan industry, but I did not see such beautiful groves as one reads about in the advertisements. The pecan industry is one for a man to give to his children, for the trees do not come into bearing until about twenty-five years of age.

In conclusion, I might say that my impressions are that there are assuredly possibilities in the South for the man with capital. When the demand for more land comes, as come it must, it will surely be developed, and the settled of today is the pioneer of the future and is accordingly entitled to his rich reward.

AGRICULTURAL TRAINS
RUN BY
COLLEGE OF AGRICULTURE
OHIO STATE UNIVERSITY
JAN. 1 1911 JAN. 1 1912

№ OF TRAINS.....14	COUNTIES REACHED..68
№ OF DAYS.....50	№ OF STOPS.....360
MILES TRAVELED...3379	ATTENDANCE...42198

ROUTE TRAVELED TWICE

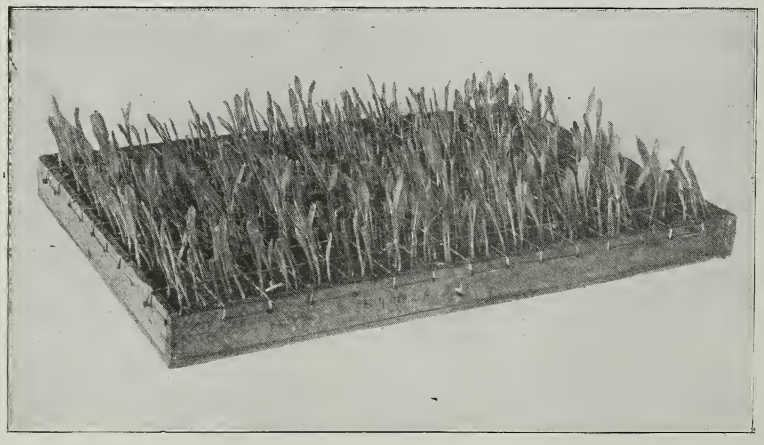
A WARNING—CONIOSPORIUM.

Within the last year a new corn disease, belonging to the Genus Coniosporium, has rapidly developed in certain parts of Ohio. It was first received at the Ohio Experiment Station in March, 1910, from Paulding County. During the past season of 1911 it has caused great loss to corn growers in various parts of Ohio, being found in more than four-fifths of the counties. So alarming has the disease become that the Experiment Station, seconded by the corn growers, asked and received from the state an emergency appropriation of $2000.00 to investigate the disease and, if possible, to find a remedy for it.

This disease, which has caused a loss in the corn crop of from 30 to 40 per cent in certain sections of Ohio, is described by Professor A. D. Selby, of the Experiment Station, in substance as follows: The fungus has a tendency to dissolve out the cementing part or xylem of the cob, causing it to split into longitudinal parts. When the cob splits the threads or strands in the pith are brought out very conspicuously and then with the aid of a small hand lens a darkening at the place where it breaks from the stalk may be noticed. This darkening is due to the very minute spores of Coniosporium. In advance cases of cob-rot, parts of the cob, the base of the kernel, the chaff, and the scales on the cob about the base of the kernel are liable to be covered over with these very minute spores and threads of the fungus. All of the ear may be attacked or only a part of it, but in every case the diseased portion tends to drop into longitudinal strips carrying single or double rows of kernels, with the dark colored fungus developed upon them.

Contrary to the action of most molds and fungi, the disease appears to be worse on the higher lands and on the early maturing varieties. The conditions surrounding the rapid development of the fungus and the disease are not really known. It appears to survive on diseased corn fodder and to be carried by manure produced from such fodder. It will also survive on old stalks and stubble in the field. It will be spread from the diseased refuse, such as diseased ears, diseased cobs, etc.

The number of spores produced is incomprehensible, therefore the danger from the disease in 1912 is greatly increased. Refraining from the planting of infected land in corn this year and applying all manure from a diseased or supposedly diseased corn or fodder to other crops will aid in suppressing the disease and in saving the season's crop.



A HINT TO THE WISE.

OHIO FIELD CROP NOTES OF INTEREST.

(From 1910 Census Report.)

Average value of farm land per acre for the entire state is $53.34, as compared with $33.35 in 1900.

Thirteen counties in the southeastern section have an average value of from $10 to $25 per acre.

Cuyahoga has the highest value per acre, $160.

Twenty-eight and nine-tenths per cent of the farms are mortgaged.

The average debt of mortgaged farms is $1491.00.

The leading crops of the state in order of their importance, with respect to value, are: Corn, $82,327,000; hay and forage, $42,357,000; wheat, $31,113,000; oats, $23,212,000; potatoes, $9,378,000, and tobacco, $8,999,000.

Yield per acre for 1909 of leading crops: Corn, 40.2 bushels; oats, 32.2 bushels; wheat, 16.8 bushels; hay and forage, 1.37 tons; potatoes, 95.5 bushels.

The acreage of wheat has decreased 43.07 per cent. since 1900. The average of all other crops has increased.

Hamilton county leads in the production of alfalfa.

Wood county has the largest acreage devoted to the growing of both corn and oats.

THE AGRICULTURAL STUDENT

OF

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COLUMBUS, OHIO, FEBRUARY, 1912.

Editorial

FIELD CROPS.

We are often proud and boastful of our present day civilization. The mightiest work of the ages! True. Civilization, social order, government, all, are dependent on man. Man is dependent on food. Our present day food supply is dependent on our field crops. The importance of a study of field crops, of improved methods, cannot be overestimated. We are but on the threshold of improvement. Give a year's time to crop improvement, or to plant breeding, or to tillage and soil fertility, and you get but a peep into the vast world of truth before you. Our knowledge about field crops is large, yet but an iota compared with the truth yet to be discovered and correlated.

The staples of the world come from the field, follow in the wake of the furrow. The plowman must be a happy man, indeed, when he ponders the far-reaching influence of his labor. What of princes, when measured beside the one by whose toil the millions are fed and clothed? (And yet are some so deluded as to grudge the producer his just wage in seeking to solve the "Cost of High Living?"). The grower of field crops is indeed a prince among men, does he but live up to his privilege and do his work well. And work well done means a maximum of production, with no depletion of the fertility of the soil, for a goodly soil, richer than we found it, is the rightful heritage of our posterity.

Thus the study of field crops is basic. Their successful production is the keystone in the arch of present day agriculture. This issue is but a poor expression of the importance with which we, as students of agriculture, must re-

gard the great quest of the production of Field Crops.

FIELD AND FAITH.

Man is intuitively religious. The soulful agriculturist, he who tills for the very love of tilling, is unalterably so. The realization of a Supreme Guiding Force comes with its strongest appeal to the man working under the broad blue dome of Heaven, the man who thinks and feels anl plans in terms of the natural laws which he strives to bend to his own service.

The husbandman, above all classes of men, exhibits his abiding faith in the Ruler of the Universe. He plants his seeds, trusting in Him "who maketh the rain to fall." He cultivates in hopefulness, he reaps in thanksgiving. And through all these processes, he studies, ponders on the ways of Nature in dealing with her children. Him she has ordained to rule—the hoe his sceptre. To best fulfill the trust he must know, as well as he may, how Nature moves. He inquires into the mysteries of growth and of fruiting, he strives to make artificial selection superior to natural selection in meeting his own wants. And so he discovers laws, correlates fact with method, thus displaying more and more the master hand. And always, at every turn, does he see the goodness of God revealed. "What is man that thou art mindful of him?" Thus it is that the countryman comes to realize the moving of a Beneficent Hand back of it all, fashioning the laws which decree that all forces move in harmony, the wonderful harmony which makes possible his very existence and his happiness.

Like Solomon, he knows to whom his thanks are due, that "The hay appeareth, and the tender grass sheweth itself, and herbs of the mountain are gathered." With the tillage of the field comes also the harvest of faith. It is good. If thy faith fail thee, go plant a seed.

A MIGHTY PROBLEM.

The marketing of his grain is one of the farmer's most vexing problems. In this issue will be found two rather lengthy articles by two of our country's most prominent authorities on the subject. It seems that the marketing of grain is inevitably associated with intricacies and practices for which we must apologize. We study the problem, we conclude that to market grain these things must exist, "dealings in future, "hedging," "speculation," etc. Perhaps so. But the present system of grain marketing is merely an incident to distribution, the effort to allow supply and demand to assume their proper relations. The evils, if there are such, must be based on principles which are fundamentally wrong. A righteous institution should have no barnacles. Why not more simplicity in our markets? Why so many middlemen, each waiting for his fee? We do not know the solution, but there must be one, there is one. He who proposes the remedy will have placed mankind greatly in his debt. Who will come forth and cleanse the "Augean Stables?" "Think on these things."

AU REVOIR.

Our friends of the Winter Course are leaving us for "pastures new"—new seats of endeavor, new spheres of usefulness, new occasions of happiness. Adieu, lads! We're glad for opportunities to know you and to study with you, glad that you're glad for the chance to garner the rich store of ideas and ideals which this great institution holds forth. Take home the treasure,

use it well. Use it for the uplift of your community, for the building of a happier rural home, for advancing the cause of Ohio agriculture. What a mighty force for good, spreading the gospel, to the uttermost corners of the state! And don't forget to boost Ohio State at every turn. She gave you the new vision, opened the new world, taught you how and why, so return the favor when occasion offers. Boost next year's Winter Course, and begin now.

For your kindly support of "The Agricultural Student," for your goodwill, and for your material aid we sincerely thank you. And why not keep in touch with us? Let us hear from you. Mayhap we can learn a lesson from your experience.

Here's to your prosperity and your happiness. "Adieu," or rather, "Au Revoir," which means "until we meet again."

The swing of the scythe or the swish of the cradle distil a sweet harmony of movement and sound which makes the harvest field the oldest acted poem known to mankind.

But let the good old crop adorn
The hills our fathers trod;
Still let us for his golden corn
Send up our thanks to God.

Let vapid idlers loll in silk
Around their costly board;
Give us the bowl of samp and milk
By homespun beauty poured!
—Whittier.

And now with autumn's moonlit eves,
Its harvest time has come,
We pluck away the frosted leaves,
And bear the treasure home.
—The Corn Song.

For the beautiful cut on our Contents Page we are indebted to the Livingston Seed Co., Columbus, Ohio.

We are profoundly grateful to Prof. George Livingston for his aid in presenting this issue. We express our gratitude to Prof. A. G. McCall for not only his delightful subject matter but for several of the illustrations which illumine these pages.

All around the happy village
Stood the maize-fields green and shining,
Waved the green plumes of Mondamin,
Waved his soft and sunny tresses,
Filling all the land with plenty.
'Twas the women who in Spring-time
Planted the broad fields and fruitful,
Buried in the earth Mondamin;
* * * * *
Summer passed, and Shawondasee
Breathed his sighs o'er all the landscape,
From the South-land sent his ardors,
Wafted kisses warm and tender;
And the maize-field grew and ripened,
Till it stood in all the splendor
Of its garments green and yellow,
Of its tassels and its plumage,
And the maize-ears full and shining
Gleamed from bursting sheaths of verdure. —The Song of Hiawatha.

NEWS NOTES

EXEMPLI GRATIA.

Carl F. Kiester, of Amelia, O., writes: "I am beginning to see the real value of those two years spent at Ohio State, but how I do wish I could have taken another year—there are so many things I did not get. The other day as I was slashing away on a young apple tree I was just thinking of how a couple of years ago I did not know any more about an apple tree than a rabbit does about the sun. I believe that what I learned about Horticulture was well worth the two years."

Mr. Kiester is one of the many Ohio State ex-students who has found the work to be of practical value.

Dean H. C. Price is charming thousands of American readers by his timely articles from Germany which have been recently appearing in several of the leading agricultural journals of this country. Among these we may mention The Agricultural Student, The Breeders' Gazette, The Ohio Farmer, The National Stockman and Farmer, Wallace's Farmer, etc. The articles relate to various phases of agriculture and rural economy.

The independent institute held at Yellow Springs, Feb. 21-22, was an unusually successful and interesting one. The principal address, "The Agricultural College and the Farmer," was delivered by Mr. O. Merton Kile, '12, whose reputation as an entertainer is statewide.

The feature story in the magazine section of a very recent issue of "The Ohio Farmer" comes from the polific pen of Mr. Clyde A. Waugh, '12.

RURAL LIFE PROBLEMS CLUB.

The agricultural student members of the Y. M. C. A. have organized what is known as the "Rural Life Problems Club," which has for its object the study of country life. Meetings are held once a week and such subjects as Rural Economics, Rural Education, Rural Social Life, Rural Physical Life, The Country Boy, Rural Institutions, County Y. M. C. A., The Country Church and Rural Leadership, are discussed. Prominent and noted men lead these meetings and great interest is manifested in an endeavor to solve some of the rural problems.

HORTICULTURAL SOCIETY.

Mr. W. W. Farnsworth, the fruit grower of Waterville, will address the University Horticultural Society Wednesday, February 28. He will speak on the "Marketing of Fruit." This subject is one of great interest to Horticultural students. Capacity audience is expected.

The Winter Course men recently passed a resolution asking Prof. A. G. McCall to write a text-book on "Crop Production." The resolution cited the great need of such a work and the belief that Prof. McCall was the one best man to bring it forth.

The incubator cellar has been temporarily located in the basement of the Judging Pavalion and all the incubation will be carried on there this spring.

The Poultry Department is gradually acquiring stock. Three colony houses have already been filled and two others will be filled soon.

OHIO STATE DAIRYMEN'S ASSOCIATION.

"The most successful dairymen's meeting ever held" is the current characterization of the eighteenth annual convention of Ohio Dairymen, which convened in Ohio Union, Feb. 8th and 9th. The odds under which dairymen are laboring because of high-priced feeds this winter have added to the enjoyment and lure of the game. Naturally, the cost of production provoked most general discussion, both in and outside the sessions. The use of low-priced roughage and increase of the production without proportionate increase in cost, largely by the use of pure-bred sires, was in the general opinion, the dairyman's way out of the situation.

The first session was occupied by the address of the President, A. S. Neale, and an address of welcome by Prof. Vivian. At other sessions Prof. F. R. Marshall spoke upon "Breeding Dairy Cows;" Prof. A. C. Anderson, of Michigan Agricultural College, dealt with "Community Breeding for Dairy Cattle." This topic started considerable discussion, led by Mr. Brown of Medina Co., Mr. Span of Kentucky and R. B. Swift of Chicago. S. E. Strode explained the work of the Dairy and Food Commission; Prof. A. G. McCall's topic was "Alfalfa vs. Clover;" G. A. Dimoc, who is probably Ohio's foremost record maker, spoke upon "The Value of a Pure Bred Sire," another topic which precipitated considerable discussion led by Mr. Baker. A question box on "Feeding," with discussions led by practical dairymen, was an interesting feature. The last session was in part a milk dealers' meeting, in which prominent and representative milk dealers of different cities led the discussion on topics related to this phase of the business. The subjects were: "The Future of the Milk Business," "The Supply of Milk for City Consumption," and "Problems Pertaining to the Regulations of Boards of Health and to the Education of Milk Consumers."

The new officers are: L. P. Bailey, of Tacoma, President; J. D. Nichols, of Cleveland, Vice-President; Prof. Oscar Erf, Secretary-Treasurer.

The banquet held Thursday evening at Ohio Union Commons gave a fair register of the interest and enthusiasm which prevailed during the entire session. One hundred persons were expected, but in the last few minutes, or half-hour to be precise, one hundred and thirty-five more were provided for. J. D. Nichols presided as toastmaster. Some of those responding to toasts were: Messrs. Bailey, Baker, Dimoc, Swift, Abbot, Scott, Scribner, Gibson, Cunningham of the Ohio Farmer, Representative Ellis and Col. Perry.

Prof. H. W. Vaughan has been confined to his home for some time with a severe attack of the "Grippe." His condition has been rapidly improving and he will soon be back to his regular duties.

The plans for the new poultry plant have been approved and the contract has been let. These plans call for a feed house, brooder house and ten pens for laying hens. When completed the plan will have a capacity of about 850 birds and an incubator and brooder capacity of 2000 chicks annually.

Prof. F. R. Marshall recently made a short visit to the "Sunny Lands" of California. While there he spent some time at the California Agricultural College, an institution which he reports as being in a very prosperous condition.

"As a Man Soweth"

(Continued from Page 314.)

the agronomist should be subjects of vital interest to every tiller of the soil. It is only by a hearty co-operation of all the economic classes, and especially of the landed classes, that we shall be able to maintain our premier position in feeding the world. With seeds as with deeds, it is no less true, that "As a man soweth, so shall he reap."

All through the long, bright days of June
Its leaves grew green and fair,
And waved in hot midsummer's noon
Its soft and yellow hair.

Heap high the farmer's wintry hoard!
Heap high the golden corn!
No richer gift has autumn poured
From out her lavish horn!

—Whittier.

A PRAIRIE STATE BOUQUET.

Monmouth, Ill., Feb. 2, 1912.

The Agricultural Student, Ohio State University, Columbus, Ohio:

Dear Friends—I have just received the January issue of The Agricultural Student and it is a "hummer." While at the National Corn Show, held at Columbus, Ohio, last year, I had to go right past the "Student's booth" every day to get my dinner and it took a mighty smart man to get past them with all his money. After walking past a few times I concluded to part with enough money to pay for a three years' subscription. And I am mighty glad I did, for it is a fine paper and well gotten up.

You must have had quite a nice corn and grain show at the college, and from the cut I should judge it was first-class in quality.

The Illinois Corn Growers' Association held a corn and grain show in connection with the Short Course at the College of Agriculture at Urbana, the second and third weeks of January. I showed corn, wheat, and oats. On oats I won first in class and sweepstakes, grand sweepstakes for best late oats, and grand champion sweepstakes for best oats in show, any variety or color. On Leaming corn I got first in class and sweepstakes for best Leaming corn in show, so I am feeling highly pleased.

I often think of the great show that the State of Ohio and its Agricultural College put on at the National Corn Show. If there had been no other exhibit there except what Ohio put on, it would have been worth a thousand mile trip to any corn belt farmer to see that alone.

Wishing The Agricultural Student all the success in the world and a prosperous year to the Buckeye farmer, I am,

Very truly your friend,
C. E. RUSSELL.

The Animal Husbandry Department has received over five hundred copies of "Herds and Flocks and Horses" as a gift from the International Live Stock Exposition. Capt. A. H. Waddell, the editor, was formerly editor of the "Bit and Spur" for many years and has been an active worker for the development of better live stock in America. The illustrations, from photographs by the best American and European live stock photographers, are very artistic as well as instructive. This very interesting bit of Animal Husbandry literature should be in the hands of every interested student and can be had for the asking.

Professors Firman E. Bear and A. B. Graham recently addressed the Farmers' Short Course meeting at Morgantown, W. Va. Professor Bear spoke on Soil Fertility and Home Mixing of Fertilizers, and Professor Graham discussed the Rural School Problem. They report that Professor Titlow, formerly of the Ohio State University, is succeeding admirably as head of the West Virginia University Extension Department.

Mr. L. E. Call, '06, of the Soils Department of the University of Kansas, is doing graduate work in the chemistry department. Mr. Call has arranged matters so that he can take a three months' vacation at this time and so will be with us until March.

Three new colony houses of the new poultry plant have already been installed between the Judging Pavilion and the Horse Barn.

The contract has been let for a portion of the new poultry plant, including the laying house, brooder house and feed building.

BREEDERS' ASSOCIATIONS.

The Cattle Breeders' association met in the early evening of Feb. 8th or 9th. G. R. Hoswell, of Circleville, was elected Secretary of the Jersey Cattle Club. A. G. Byers, of Columbus, is Secretary of the Holstein-Friesian Breeders' Association. E. H. Baker, of Gates Mils, continues as President of the Guernsey Breeders' Association. Carl Gockerel, of Barberton, is Vice-President, and C. H. Drissen, of Coleville, Secretary. At the meeting of the last-named association, Mr. Gockerel described the feeding of Spottswood Daisy Pearl, emphasizing the value of great variety in the ration.

NEW GREENHOUSES.

It has finally been decided to build the new greenhouses for the Horticultural Department on the site now occupied by the old houses. Two modern houses, each seventy-two by twenty feet, will be erected. The old structures will be torn down as soon as the weather moderates.

Mr. Eli Jones, of Painesville, is the donor of an excellent collection of leaves and woods to the Forestry Department. The superintendent of Goodale Park has also added several specimens to the collection owned by the department.

Two more pens of very high class wether lambs, representing the Oxford and Southdown breeds, have been received by the University. They will be used for class-room work and show purposes, for which they are a promising lot.

The Forestry Department is again able to boast of one girl student. Miss Sara Ridgway has registered in several forestry courses.

Marketing of Grain

(Continued from Page 326.)

farming than for wheat. Corn is harvested and put in the crib under all sorts of conditions; some years, notably the crop of 1910 and 1911 contains moisture far above the average and far more than is good for safe keeping.

The money value of corn during the period directly after husking, when the natural drying process is in operation, depends largely on the moisture content. You have no doubt given more or less study to the moisture content proposition of corn, and unless you fully understand the subject you cannot have a fair knowledge of all of the conditions which contribute to the market value of corn. Circular No. 55 of the Bureau of Plant Industry, United States Department of Agriculture, entitled "American Export Corn," also Grain Dealers' Federation, Schedules "A" and "B," cover the subject very thoroughly.

The system of handling and marketing corn is attended with greater difficulties and greater risk than that of other cereals, incident to change in condition from corn in the ear, when sold by the producer, and shelled corn when sold to the manufacturer, miller, or consumer. The element of the weight of cob, which is of almost insignificant commercial value, is a controlling factor. The present methods and practices by both producer and country elevator operator in failing to discriminate between high and low production of shelled corn from a certain quantity of ear corn should be discouraged and all ear corn bought as nearly as possible on its value based on yield of shelled corn. The remedy for this abuse or imposition lies with the buyer; and until he discriminates against cobs and rewards you equitably on a shelled corn basis, you will have no incentive to encourage the raising of corn high in shelled corn and low in cob.

You ask, "How does the grain find its way from the farm to the consumer?" You know what it has cost you to produce it, and now commences the operation of disposing of your surplus at a profit, for wtihout a profit, you would become dormant, disinterested beyond comfortable existence; you want good returns for your labor, your knowledge, your capital, so that you may be enabled to better your condition socially and financially.

You have harvested and threshed your wheat and oats, it is ready for market; your corn has been cribbed, that is, if you are a careful farmer; if not, perhaps it is still in the stalk on the ground or in the shock, subject to considerable loss and wastage. However, we assume that your production is of good quality in good condition, if not, try to improve it with your own labor; you can do it at a less cost than the buyer, unless it requires the use of very expensive machinery. Show the buyer a sample of the wheat and oats, have him test your corn, ask him to pay you according to its grade. If he does not offer you a price which you think its value represents, measured by an intelligent investigation of the market prices with an allowance for a fair profit for the buyer, try another buyer. I assure you that you will get all the grain is worth. You deliver it, get your money just as quick as the grain is weighed and unloaded. The elevator man handles it through his elevator, recleans it if necessary, or in the case of ear corn shells it, loads it into a car containing from 40,000 to 100,000 pounds; the local freight comes along, picks it up,

takes it to the terminal of the road, turns it over to a public elevator, where after being inspected carefully, car examined for leaks, it is unloaded in a few minutes. If intended for storage, an official inspection certificate is issued showing grade, and also an official weight certificate showing weight. These certificates then become practically cash, or very nearly so. Money can be borrowed from the banks to the extent of its market value. The grain is protected by insurance, but unless placed in special bin and identity preserved, loses its identity and is mixed with other grain of same grade. If this car has been consigned on the market, the commission merchant will sell it to the highest bidder. The shipper may have sold it before it was shipped at a certain price for a certain grade for a certain time of shipment, immediate, quick or prompt. Assuming that the grain is tributary to Toledo market, that being the best market; that the elevator man paid you if wheat, No. 2 Red, say 94 cents. In arriving at this value he estimated as follows

Toledo market bid him F. O. B. net, tracks Toledo, Toledo weights and inspection, $1.02 per bu.

Deduct: Freight to Toledo, 5c per 100 lbs., 3c; for handling through his elevator, covering labor, slight shrinkage, interest, taxes, insurance, incidental expenses, depreciation on plant, 1½c; also a profit, including a fair salary for himself, 3½c. Total cost, all items, 8c, plus 94c equals $1.02.

This is not the end of the transaction or the marketing of this car of grain. The Toledo buyer may be flush with money and wants the grain for the carrying charges, and to earn good interest. If so, we will assume that the grain went into the elevator December 15th and he concludes that it will be needed next May by a miller or a shipper, and the current price of the May option is say $1.08; he will sell May wheat in Chicago as a hedge against the actual wheat and carry it either the whole or a part of the time to maturity of the May option, depending on the market fluctuations of cash wheat and the option during the interval to afford a possible extra profit. This wheat will come back on the market some time before the new crop begins to move. If a miller located, say at some point in Ohio east or south of Toledo, is short of wheat, he may buy it, ship it to his mill, manufacture it into flour, handle the shipment on a milling in transit basis, saving local freight charges, forward it on to some domestic consuming point where he may have sold the flour, or to New York for export. The cost of freight will be about an equivalent of 10c per bushel if the product is used domestic, or about 8½c per bushel if exported.

The cost of freight on grain moving from Ohio and the Central West to the Eastern and Southern consuming markets has changed but very little during the past twenty-five years; at no time during that period has the higher or lower cost of transportation varied over 10 per cent from present cost, which cost is made in a manner conforming pretty closely to a graduated proportionate mileage basis, although the act to regulate interstate commerce authorizes, under certain conditions, a greater charge for a short than for a long haul.

The marketing of your grain is a big proposition, almost beyond the comprehension and the power of man to control it, performing all the functions so adequately and perfectly as to secure the greatest possible remunerative re-

sults to every interest concerned and to subserve and to conserve the same to the greatest possible degree for the welfare of our great and ever-increasing population which is rapidly nearing the time when our farms will be taxed to their capacity to supply our own people with sustenance.

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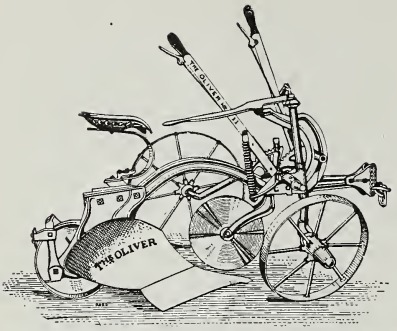

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By reason of its simple construction, light weight, easy draft, durability, and perfect work is

THE BEST PLOW YOU CAN BUY
SOME OF THE REASONS

The only sulky plow made with which you can turn either gee or haw equally well, leaving no hard spots, and avoid the necessity of plowing out corners.

It is the lightest draft riding plow made, due to the entire absence of landside friction and the even distribution of the load. The weight of the plow and driver is CARRIED instead of being DRAGGED along.

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Works at SOUTH BEND, IND., and HAMILTON, ONT., CAN.

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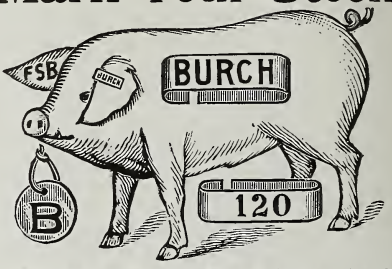

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Minor's Fluid

"The Yellow Can"

It is non-poisonous, easily prepared and guaranteed to kill lice, ticks and stomach worms; it cures mange and scab and prevents hog cholera, etc.

Your dealer carries MINOR'S FLUID in stock or can get it from his jobber. If not, write us direct. Get our prices on Dipping Tanks.

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Both the *quantity* and *quality* of the feed improve when the right plant foods are used to supplement the manure and clover. They improve enough to yield a *handsome profit* on the expenditure.

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POTASH

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Try Potash salts alone on the swamp land pasture and note the clover and good grasses crowd out the wild hay. Write us for prices of Potash, one bag up.

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The Silo that is wanted by those who want the BEST. Quality of material and proper construction is our motto. If price alone is considered, we want to be excused from quoting prices. If, however, QUALITY is wanted, give the ROSS a chance. Competition sidesteps quality and makes the price the main issue when figuring against THE ROSS.

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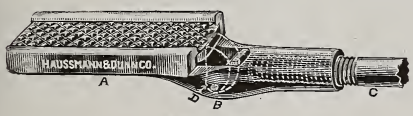

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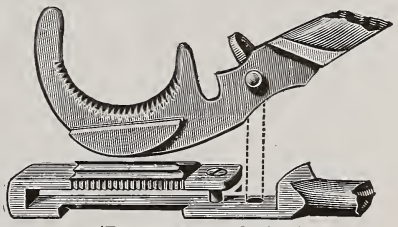

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(Figure 1760.

A modification of the Dr. Geo. R. White-Haussmann Emasculator. This instrument is essentially the same as the White-Haussmann Emasculator, but considerably improved by being made aseptic as shown in the illustration. This instrument and the White modification should not be confused with other so-called White Emascultors, as they are materially different in construction. The emasculators manufctured by us. Price 10.00.

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Ask us to send you our special circular with suggestions as to how you can

Double Your Corn Crop

THE JARECKI CHEMICAL CO., Cincinnati and Sandusky, Ohio

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IN EUROPE AND AMERICA

The much higher yields per acre which the European Farmer obtains show that he is farming with greater efficiency.

His yield per acre compared with our is an object lesson, showing the soundness of his practice.

AVERAGE YIELD PER ACRE

EUROPEAN.	AMERICAN.
30 bushels.....Wheat	14 bushels.....Wheat
2 tons..... ..Hay	1⅓ tons.....Hay
40 bushels.....Oats	32 bushels.....Oats
210 bushels.....Potatoes	95 bushels.....Potatoes

When we consider that these yields are obtained on land that has been cropped for hundreds of years, and that the European Farmer has practically doubled his yields per acre in the last 80 to 100 years, European methods of Farming are of vital interest and importance to every Farmer and Student of Agriculture.

The increased yield per acre is explained by the leading European Experiment-Station officials as being due, fully fifty per cent. to the use of Commercial Fertilizer—the other fifty per cent. due to Better Selection of Seed, Better Drainage, Better Tillage and Better Rotation of Crops.

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No. of Acres	Crop	Bushels per Acre	Soil.	Location.
25	Oats	68	Black Loam	Lindsey, O.
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100	Wheat	28	Clay (farmed 80 yrs.)	Duvall, O.

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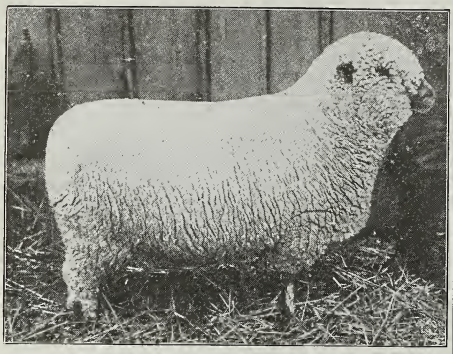

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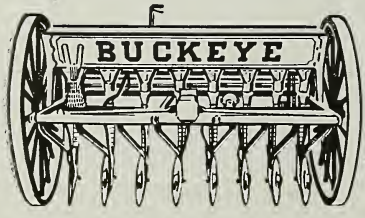

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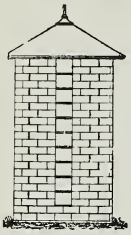

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Are made in every style. Recognized everywhere as the "complete, dependable line." No matter what kind of crops you grow or on what kind of land—steep hills, slightly rolling or flat land—there is made a **Buckeye Cultivator** that will "insure the greatest yield from any field." Send for Buckeye Cultivator Catalogue and go to your local implement dealer and insist on seeing Buckeye Cultivators. "The Buckeye—a wise buy."

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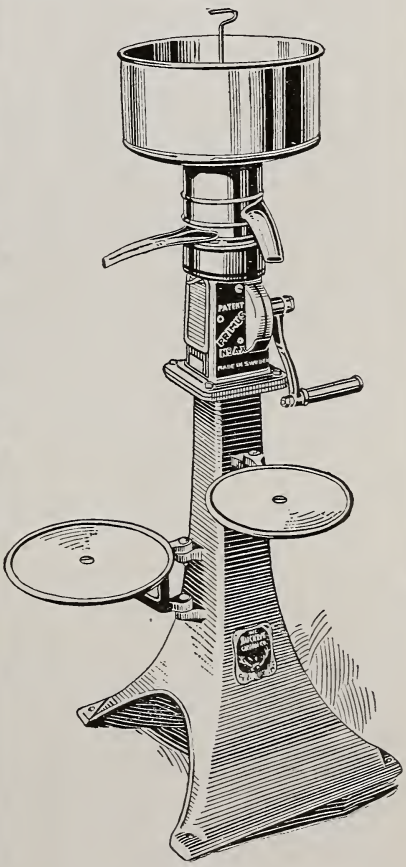

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SPECIAL ATTENTION TO LADIES' WORK

Work called for and delivered. Phone us.

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NEW MANAGEMENT

THE COLUMBUS SPORTING GOODS CO.

ATHLETIC AND SPORTSMEN'S SUPPLIES
16 EAST CHESTNUT STREET.

The McDonald Hardware Co.

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We are always pleased to do business with O. S. U. boys.

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We cordially invite you in and look over our line of Furniture, Rugs and Draperies.

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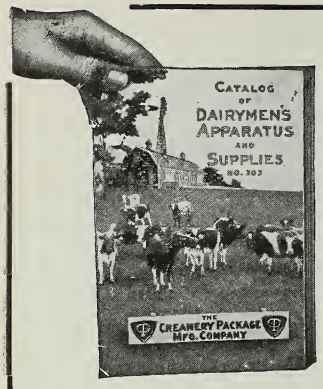

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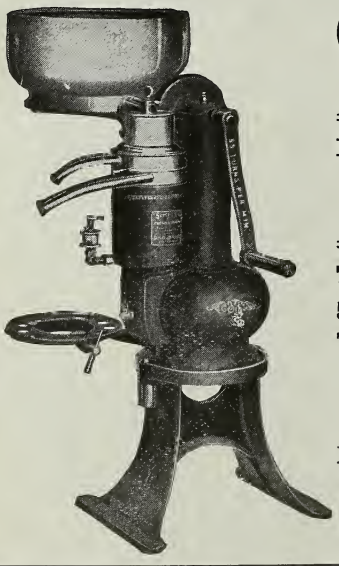

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